

the condition of education 2001



INDICATOR 24

Mathematics Curriculum and College Enrollment

The indicator and corresponding tables are taken directly from *The Condition of Education 2001*. Therefore, the page numbers may not be sequential.

Additional information about the survey data and supplementary notes can be found in the full report. For a copy of *The Condition of Education 2001*, visit the NCES web site (<http://nces.ed.gov/pubsearch/pubsinfo.asp?pubid=2001072>) or contact ED PUBs at 1-877-4ED-PUBS.

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NATIONAL CENTER FOR EDUCATION STATISTICS

U.S. Department of Education
Office of Educational Research and Improvement

Transition to College

Mathematics Curriculum and College Enrollment

Taking advanced mathematics in high school increases the likelihood of college enrollment, especially for students whose parents never attended college.

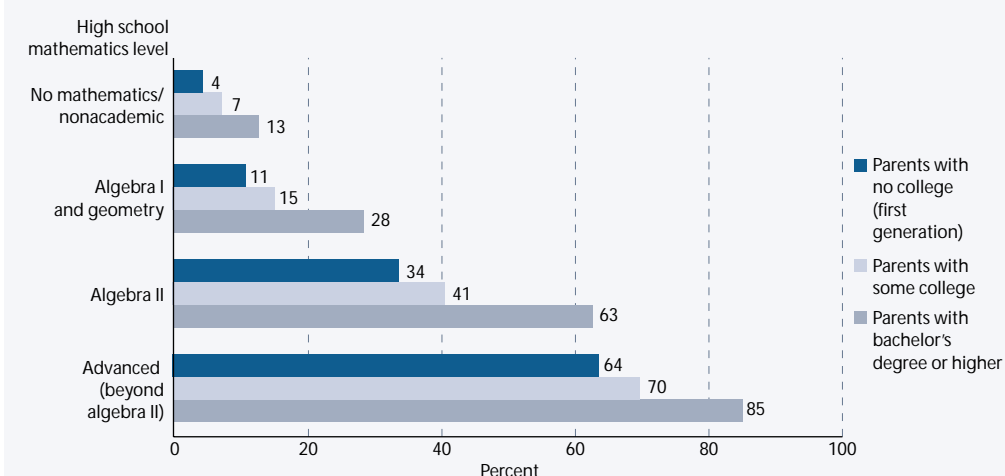
College students whose parents have attained no more than a high school education are often referred to as “first-generation” college students. Just over one-quarter of high school graduates are from families where neither parent attended college. The rate at which these students enroll in 4-year colleges is much lower than that of their counterparts whose parents attended college (NCES 2000–153). Because of this difference in enrollment rates, students whose parents did not attend college are often targeted for outreach programs to help them prepare academically for college (Swail and Perna 2000). One indicator of academic readiness for college is the highest level of mathematics completed in high school.

Among 1992 high school graduates, at all mathematics levels completed except the lowest, students whose parents did not attend college enrolled in 4-year colleges at lower rates than did their counterparts from families where at least one parent has a bachelor’s degree. However, completing advanced mathematics courses (e.g., pre-calculus or higher) appeared to help mitigate the disadvantages of first-generation status. For example, among high school graduates whose par-

ents did not attend college, 64 percent who had completed advanced mathematics courses in high school enrolled in a 4-year college, compared with 34 percent who had completed courses through algebra II and 11 percent who had completed algebra I and geometry. Comparable percentages for students with a parent who has a bachelor’s degree were 85 percent, 63 percent, and 28 percent, respectively.

Future first-generation college students can help prepare themselves for taking advanced mathematics in high school by taking algebra in middle school. However, not all students have acquired the necessary skills for doing so. But among students who presumably have—those at the highest proficiency level tested in 8th grade (level 3)—83 percent whose parents did not attend college and who had completed algebra by 8th grade went on to complete advanced mathematics in high school. In contrast, 54 percent who had not taken algebra completed advanced mathematics. Among students with a parent who has a bachelor’s degree, the comparable percentages were 95 percent and 73 percent, respectively (see supplemental table 24-1).

MATHEMATICS AND COLLEGE ENROLLMENT: Percentage of 1992 high school graduates who had enrolled in a 4-year institution as of 1994, by highest level of mathematics completed in high school and parents’ education



NOTE: See *Supplementary Note 6* for definition of course levels.

SOURCE: U.S. Department of Education, NCES, National Education Longitudinal Study of 1988 Eighth Graders, “Third Follow-up” (NELS:1988/1994), Data Analysis System.

FOR MORE INFORMATION:
Supplemental Notes 1, 6, 8
Supplemental Table 24-1
NCES 2000–153
Swail and Perna 2000



Mathematics Curriculum and College Enrollment

Table 24-1 Percentage of 1992 high school graduates who completed advanced mathematics courses in high school, by 8th-grade mathematics proficiency and parents' education according to whether they had taken algebra in the 8th grade

8 th -grade mathematics proficiency	Parents with no college (first generation)		Parents with some college		Parents with bachelor's degree or higher	
	No algebra in 8 th grade	Algebra in 8 th grade	No algebra in 8 th grade	Algebra in 8 th grade	No algebra in 8 th grade	Algebra in 8 th grade
Total	18.4	49.8	30.1	74.7	50.9	89.9
Below level 1	6.4	—	6.7	—	36.5	—
Level 1 (simple arithmetic)	12.8	43.6	22.0	35.5	32.9	65.2
Level 2 (simple operations)	29.2	56.8	39.6	67.6	57.2	87.4
Level 3 (simple problem solving)	53.8	82.5	67.4	92.6	72.5	94.5

— Sample size too small for a reliable estimate.

NOTE: An example of how the percentages in the tables should be read is as follows. Beginning in row "Level 1" under "8th-grade mathematics proficiency," the 12.8 means "among students who tested at level 2 proficiency, 12.8 percent of first-generation students who did not take algebra in 8th grade completed advanced mathematics in high school."

SOURCE: U.S. Department of Education, NCES. National Education Longitudinal Study of 1988 Eighth Graders, "Third Follow-up" (NELS:1988/1994), Data Analysis System.

Mathematics Curriculum and College Enrollment

Table S24 Standard errors for the percentage of 1992 high school graduates who had enrolled in a 4-year institution as of 1994, by highest level of mathematics completed in high school and parents' education

High school mathematics level	Parents with no college (first-generation)	Parents with some college	Parents with bachelor's degree or higher
No mathematics/nonacademic	0.8	1.4	5.0
Algebra I and geometry	1.7	1.5	3.3
Algebra II	2.4	2.1	2.4
Advanced (beyond algebra II)	2.8	1.7	1.4

SOURCE: U.S. Department of Education, NCES. National Education Longitudinal Study of 1988 Eighth Graders, "Third Follow-up" (NELS:1988/1994), Data Analysis System.

Mathematics Curriculum and College Enrollment

Table S24-1 Standard errors for the percentage of 1992 high school graduates who completed advanced mathematics courses in high school, by 8th-grade mathematics proficiency and parents' education according to whether they had taken algebra in the 8th grade

8 th -grade mathematics proficiency	Parents with no college (first generation)		Parents with some college		Parents with bachelor's degree or higher	
	No algebra in 8 th grade	Algebra in 8 th grade	No algebra in 8 th grade	Algebra in 8 th grade	No algebra in 8 th grade	Algebra in 8 th grade
Total	1.1	4.1	1.1	2.4	1.7	1.5
Below level 1	1.4	—	1.2	—	7.4	—
Level 1 (simple arithmetic)	1.3	11.4	1.5	6.2	2.5	7.9
Level 2 (simple operations)	2.8	8.0	2.6	5.9	2.8	3.5
Level 3 (simple problem solving)	5.0	4.7	2.9	2.1	2.8	1.7

—Not applicable.

SOURCE: U.S. Department of Education, NCES. National Education Longitudinal Study of 1988 Eighth Graders, "Third Follow-up" (NELS:1988/1994), Data Analysis System.